

ARTIFACT SHEET

Enter artifact number below. Artifact number is application number + artifact type code (see list below) + sequential letter (A, B, C . . .). The first artifact folder for an artifact type receives the letter A, the second B, etc.. Examples: 59123456PA, 59123456PB, 59123456ZA, 59123456ZB

08777913 BA

Indicate quantity of a single type of artifact received but not scanned. Create individual artifact folder/box and artifact number for each Artifact Type.

☐

CD(s) containing:

computer program listing

Doc Code: Computer

pages of specification

and/or sequence listing

and/or table

Doc Code: Artifact

content unspecified or combined

Doc Code: Artifact

☐

Artifact Type Code: P

☐

Artifact Type Code: S

☐

Artifact Type Code: U

☐

Stapled Set(s) Color Documents or B/W Photographs

Doc Code: Artifact Artifact Type Code: C

☐

Microfilm(s)

Doc Code: Artifact Artifact Type Code: F

☐

Video tape(s)

Doc Code: Artifact Artifact Type Code: V

☐

Model(s)

Doc Code: Artifact Artifact Type Code: M

☒

Bound Document(s)

Doc Code: Artifact Artifact Type Code: B

☐

Confidential Information Disclosure Statement or Other Documents marked Proprietary, Trade Secrets, Subject to Protective Order, Material Submitted under MPEP 724.02, etc.

Doc Code: Artifact Artifact Type Code X

☐

Other, description: _____

Doc Code: Artifact Artifact Type Code: Z

March 8, 2004

68231 U.S. PRO
08/977915
11/25/97

The Commissioner of Patents and Trademarks

*Has received an application for a patent
for a new and useful invention. The title
and description of the invention are en-
closed. The requirements of law have
been complied with, and it has been de-
termined that a patent on the invention
shall be granted under the law.*

Therefore, this

United States Patent

*Grants to the person or persons having
title to this patent the right to exclude
others from making, using or selling the
invention throughout the United States
of America for the term of seventeen
years from the date of this patent, sub-
ject to the payment of maintenance fees
as provided by law.*

Bruce Lehman

Commissioner of Patents and Trademarks

Deane Perry

Attest

The
United
States
of
America





US005472018A

United States Patent [19]

Verner et al.

[11] **Patent Number:** 5,472,018[45] **Date of Patent:** Dec. 5, 1995[54] **AIR CONDITIONING OF A WEAVING MACHINE WITH DISPLACEMENT TYPE AIR FLOW STREAM**[75] Inventors: **Pavel Verner, Zurich; Walter Bollier, Adliswil, both of Switzerland**[73] Assignee: **Luwa AG, Zurich, Switzerland**[21] Appl. No.: **50,432**[22] PCT Filed: **Sep. 22, 1992**[86] PCT No.: **PCT/CH92/00193**§ 371 Date: **Aug. 18, 1993**§ 102(e) Date: **Aug. 18, 1993**[87] PCT Pub. No.: **WO93/06281**PCT Pub. Date: **Apr. 1, 1993**[30] **Foreign Application Priority Data**

Sep. 23, 1991 [CH] Switzerland 02815/91

[51] Int. Cl.⁶ **D03J 1/00**[52] U.S. Cl. **139/1 C; 57/308; 19/66 CC; 15/301; 165/47; 34/435**[58] Field of Search **454/187; 138/1 C; 57/308; 19/66 R, 66 CC; 15/301; 165/47, 53; '62/63, 322, 426; 34/20, 13, 154, 435**[56] **References Cited****U.S. PATENT DOCUMENTS**

2,460,150	1/1949	Schupp	34/20 X
3,391,528	7/1968	Shackelford	
3,667,133	6/1972	Lincoln	34/20
3,816,987	6/1974	Hofstetter	15/301

4,112,663	9/1978	Chrtek et al.	57/308
4,196,544	4/1980	Davis et al.	165/47 X
4,570,682	2/1986	Bachmann	139/1 C
4,976,098	12/1990	Meyer et al.	57/308
5,121,522	6/1992	Leifeld et al.	19/66 CC
5,144,781	9/1992	Fitzner	454/187
5,157,910	10/1992	Artzt et al.	57/308

FOREIGN PATENT DOCUMENTS

0137056	4/1985	European Pat. Off.	
1486241	7/1967	France	
2203900	7/1973	Germany	
4123451	1/1993	Germany	57/308
2131936	6/1984	United Kingdom	62/63

OTHER PUBLICATIONS

Dr.-Ing. Helmut Weinsdorfer, Ulrich Stark Webmaschinentstaubung und Webmaschinenklimatisierung—ein Widerspruch? 6. Weberei-Kolloquium—Die Peripherie beeinflusst den Nutzeffekt—16. und 17. Oktober 1990.
Internationales Textil-Bulletin Weltausgabe Weberei No. 1, 1973, pp. 54–59 Geb. Sulzer A.G. "Einzelklimatisierung an Sulzerwebmaschinen".

Primary Examiner—Andy Falik*Attorney, Agent, or Firm*—Cushman, Darby & Cushman

[57]

ABSTRACT

A process for the air conditioning of a weaving machine includes generating, for the weaving machine, at least one conditioning air stream spaced from a warp of the weaving machine and directed towards the warp, and distributing the conditioning air stream in stages so as to form a downwardly directed displacement-type flow towards threads of the warp. The displacement-type flow is a non-turbulent, uniform flow over a cross-sectional profile of the flow.

19 Claims, 2 Drawing Sheets